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In order to improve the quality and the diagnostic value of projection images of the anatomical parts the invention acquires at least one initial projection image of at least the region of interest of the anatomy, to determine the positions and/or orientations of the anatomical parts in the region of interest from the at least one initial projection image and/or from other sources of information, to determine the optimum imaging parameters for the anatomical parts from their positions and/or orientations, and to acquire images of the anatomical parts while using the optimum imaging parameters. The complexity of the scene and the mixture of over-projecting structures limiting the diagnostic reliability of the projection images are thus taken into account. In a preferred embodiment a scanning trajectory is determined while using the information of the at least one initial projection image along which the source-detector unit is moved while acquiring the projection images of the spine.--

IN THE CLAIMS:

Please amend claims 1-9 and add new claim 10 as follows (see the attachment for details of the amendment):

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1. (Amended) A method for imaging a plurality of anatomical parts of the human anatomy by means of an X-ray apparatus, the method comprising the steps of:

acquiring at least one initial projection image of at least
5 a region of interest of the human anatomy,

determining the positions and/or orientations of the
plurality of anatomical parts in the region of interest from the
at least one initial projection image and/or from other sources
of information,

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determining optimum imaging parameters for each of the
plurality of anatomical parts from their positions and/or
orientations, and

acquiring images of the plurality of anatomical parts while
15 using respective optimum imaging parameters for each of the
plurality of anatomical parts.

2. (Amended) A method as claimed in claim 1, wherein
optimum exposure and/or collimator settings are determined from
the positions, orientations and/or appearance of the anatomical
parts in the at least one initial projection image.

3. (Amended) A method as claimed in claim 1, wherein optimum
projection lines for acquiring projection images of the
anatomical parts are determined from the positions and/or
orientations of the anatomical parts.

4. (Amended) A method as claimed in claim 1, wherein the at least one initial projection image is taken as a frontal image and/or a lateral image.

5. (Amended) A method as claimed in claim 1, wherein the at least one initial projection image is an overview image reconstructed from at least two projection images.

6. (Amended) A method as claimed in claim 1, wherein an optimum projection line is determined for each anatomical part in the region of interest.

7. (Amended) A method as claimed in claim 1, wherein the acquired images of the anatomical parts are displayed separately or are combined to form a composite image for display.

8. (Amended) A method as claimed in claim 1, wherein the method is used for imaging the human spine and comprises the steps of:

acquiring at least one initial projection image of at
5 least a region of interest of the spine,

determining positions and/or orientations of each of a plurality of vertebrae in the region of interest from the at least one initial projection image,

10 determining optimum imaging parameters for each of the plurality of vertebrae from their positions and/or orientations, and

acquiring images of each of the plurality of vertebrae while using the optimum imaging parameters.

9. (Amended) An X-ray apparatus for imaging a plurality of anatomical parts of the human anatomy, in particular parts of the human spine, having an x-ray source and an x-ray detector facing the x-ray source, the x-ray source and the x-ray detector being
5 movable with respect to each other and with respect to the patient so as to enable the acquisition of projection images of each of the plurality of anatomical parts from different positions and/or orientations, the x-ray apparatus comprising:

a control unit for controlling the x-ray apparatus such
10 that at least one initial projection image of at least a region of interest of the human anatomy is acquired, and

a processing unit for determining the position and/or orientation of anatomical parts in the region of interest from the at least one initial projection image and/or from other

15 sources of information and for determining optimum imaging
parameters for each of the plurality of anatomical parts from
their positions and/or orientations, the optimum imaging
parameters being used by the control unit to control the x-ray
apparatus such that images of each of the anatomical parts using
20 the optimum imaging parameters are acquired.

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Please add new claim 10 as follows:

--10. (New) A method for imaging the human spine comprising
the steps of:

A5 5 acquiring at least one initial projection image of at
least a region of interest of the spine,

determining positions and/or orientations of vertebrae
in the region of interest from the at least one initial
projection image,

determining optimum imaging parameters for each of the
10 vertebrae from their positions and/or orientations in the at
least one initial projection image, and

acquiring images of each of the vertebrae while using
the corresponding optimum imaging parameter for that vertebrae.--
